# An Essay
## on
# "Induration"
respectfully submitted
to
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## "Induration."

This term is derived from the Latin word Induratio – to become hard, and is used in medicine to denote the condition of a part, when it has become of a harder and firmer character than natural.

Induration may be either physiological or pathological.

The former proceeds, first, from those changes which take place in the tissues during the progress of age: and, secondly, from the increased nutrition and vital cohesion consequent upon great activity of the vital manifestations of the part. This latter state, however, can hardly be termed induration.

The gnral pathological relations of induration only require a passing notice at this place. The specific conditions of it existing in the different tissues and organs, may be found in any work on gnral pathology.

Induration often exists in a simple state, being apparently unconnected with any disposition of a fluid or morbid product. In this case owing to some alteration in its nutrition, there is merely a greater density of the natural structure, without the addition of any extraneous or morbid secretion or further lesion of organization. Of tissues and organs that occasionally present this alter-ation, may be mentioned the liver,

muscular structure of the heart, the fibrous and cellular tissues, the bones, glands, and perhaps the brain. This may occur, and the form and size of the part remain natural; but not unfrequently it is accompanied with an increase in the size, constituting hypertrophy with induration.

Induration may depend in a measure upon an infiltration of a fluid or an solid matter, into the peculiar structure of the part - and this infiltrated matter, may consist of a variety of ~~them~~ the primary, or secondary compounds of the body; of serum, lymph &c.

The capillaries of the part,

in consequence of an excited or unnatural action, may be the agents that are concerned in the effusion of these extraneous substances!
but these effused matters subsequently undergo various changes in regard to consistence or even organization, their watery parts being absorbed, and the more solid portions being identified to a greater, or less degree, with the part ~~that~~ which they infiltrate.
Examples of this alteration, may be observed in the lungs, liver, glands &c.
When the matter deposited is of a peculiar or adventitious nature whether pre-existent in the blood, or produced by a certain change in the vital condition of the part, or of the

constitution, the tissues, which are the seat of the induration, undergo a succession of changes, and they, as well as the matter which infiltrates them, or is deposited in them, assume peculiar forms, as in scirrhus, cancer, &c.

Induration on the other hand may proceed from the absorption of the more fluid constituents of the tissues. This seldom occurs however, excepting from compression, owing to the effusion of fluid, or the development of morbid structures in their vicinity, or in the enveloping parts. An example of this kind may be seen in the lungs, when the effusion of fluid into the cavity of

the pleura, has produced an indurated condition of one or both of these organs, as the case may be.

This form of induration however, may often be regarded rather a state of condensation or perhaps atrophy with induration.

The distension that is often produced by an accumulation of the natural secretions of the body, cannot be considered as a form of induration.

Indurated parts vary much in appearance, in colour, size and form. When a part is really indurated, it is generally pale.

Of course, if the hardness be merely dependant upon the collection of blood in the part, it will be of a

duper colour than usual; but if the part be organically hardned, in consequence of the deposite of some morbid product, it will be pale.
The colour must always depend on the natur of the infiltrated material, and the vascularity of the part. In some cases it may be gray, brown, or even black.
The size of indurated parts, may, or may not be changed. It does not follow, because a part has become indurated, that the size should be altered. In the majority of instances however, the part will be incr and in size. In other cases we may have atrophy with induration; as in the hepatic disease termed

cirhosis. The form of the indurated part may or may not be altered.

The causes of induration may, in general terms, be stated to be whatever upsets the vital actions of the part, or occasions a slight or protracted irritation of its capillaries. In cases however, where the induration arises from compression, there cannot be any agency in producing the lesion in question. In many cases we shall find this condition the consequence of chronic inflammation of the part, although In the consideration of the process of induration, it is important to bear in mind the fact, that the slowness with which the product of the chronic inflammation is effused, allows sufficient

time for the absorption of the fluid portions; thus leaving the cells of the tissue to be occupied by the hardened material exclusively. This view we have taken of the subject, will enable us to explain the mode in which counter-irritation frequently either softens or entirely removes, the induration of parts; this probably consists in exciting a more active inflammation, which by its rapidly effused product, liquifies the hardened material, and thus renders it absorbable. When in induration the albuminous and fibrinous portions of the blood accumulate, massinclated in the cells and retains the particles of the tissue.
From this we infer that the material upon which the induration of structures

depends, is always the same, however ~~the~~ dissimilar the composition of the latter.
The process of inflammation appears to be intimately modified by the organization of the structure in which it occurs.
From these facts we may premise the production of tubercles, carcinoma, melanosis &c., to be owing to the vegetable sanguinis being altered by some change in the blood, and thus modifying those simple actions of induration in such a manner as to produce the morbid results in question.
At an advanced period of induration the vitality of the part is lessened, and the quantity of blood it receives is less than before the induration.
We not unfrequently see in cases of

this condition, a secondary irritation arising, after a longer or shorter period, and this secondary action sometimes restores the indurated part to its healthy condition; but in the majority of instances it is production of the most serious consequences, causing ulceration, sloughing &c. In case of specific indurations, as in carcinoma, scirrhus &c., it forms one essential stage in the course of these diseases.

Treatment — Induration existing in vital organs can seldom be ascertained so as to enable the physician to enter upon its treatment with any great hope of success. In other cases when the indurated part is near the surface, we are enabled to diagnose the case

more accurately, and to treat it more successfully.

The remedies adapted to the treatment of induration, are numerous, and in the most easy manner shall give no indications for their use in different cases of this affection; but shall merely point out in a general manner, the particular remedies that are required in the treatment of induration ~~existing in a certain locality and tissue~~ occurring in different tissues—

1) Indurations of the viscera require for their treatment. Arnica, Baryta Carb. Bell. Bry. Calc. Chin., Clematis Comm. Magn. M., Plumbum, Sepia, Silicea, &c., Among them Bell. Clematis and Magn. M., are the most important. Chin may also

be considerd as a my important remedy in some cases of this condition. We my often find the Lymphatic glands the seat of induration.
In this case we shall find the locality of the part that is affected to him a my important bearing in the choice of a remedy—
Induration of the glands of the neck will often be removed by the use of one of the following remedies Viz. Baryta Carb., Bell. Calc. Carbo animalis, Dulc., Iodini, Silicea, Spongia, Sulphur, &c.
Axillary glands— Calc., Carbo veg. Iodine, Merc., Silicea, Sulphur,
Inguinal glands — Bell., Calc, Dulc. Iodine, Silicea and Sulphur,

Induration of the Tonsils – Bonyta C.
Calc. Ignatia, Sulphur, &c.
Mesenteric glands – Calc.
Ulcers – Aurum, Bonyta,
Skin – Arsenic, Graph, Rhus, Sepia
Lach, Silicea, &c.
Mammae – Carbo An. Con, Silicea
Lycop, Merc. Phos. Sepia, Sulph &c.
Scirrhus induration – Bell. Ars.
Carbo veg. Con. Magn. Staph.
Sulphur &c.

Finis